Seventh Semester B.E. Degree Examination, June/July 2013
Computer Communication Networks

Time: 3 hrs. Max. Marks:100

**Note: *Answer FIVE full questions, selecting
at least TWO questions from each part.***

PART – A

1 a. Explain briefly with relevant examples, the four levels of addresses that are used in an internet employing the TCP/IP protocols. **(10 Marks)**

   b. Briefly describe the functions of physical layer and data link layer. **(06 Marks)**

   c. Explain the operation of ADSL using 'Discrete Multitone Technique' indicating the different channels, with a diagram. **(04 Marks)**

2 a. Explain the mechanism of selective repeat ARQ with diagram showing send window and receive window. **(10 Marks)**

   b. With suitable block diagram, explain the stop and wait protocol, for noise less channels. Also write the sender site algorithm. **(06 Marks)**

   c. Perform bit stuffing and unstuffing on the given bit stream: 0001111111001111101000. Assume flag as 01111110. **(04 Marks)**

3 a. Explain how collisions are avoided through use of 'IFS, contention window and acknowledgments' in CSMA/CA. With the help of the flow chart show the procedure for CSMA/CA. **(10 Marks)**

   b. Explain 'Token Passing' method of controlled access of the channel. **(06 Marks)**

   c. A slotted ALOHA network transmit 200 bit frames using a shared channel with a 200 kbps bandwidth. Find the throughput if the system produces i) 1000 frames per second ii) 500 frames per second iii) 250 frames per second. **(04 Marks)**

4 a. List the goals of fast Ethernet. Explain the features of physical layer in fast Ethernet. **(10 Marks)**

   b. Explain two different kinds of services as defined in IEEE 802.11. **(06 Marks)**

   c. Write a note on Piconet and Scatternet in Bluetooth. **(04 Marks)**

PART – B

5 a. A system with four LANs and five bridges is shown in Fig.Q5(a). Choose B1 as the root bridge. Show the forwarding and blocking ports, after applying the spanning tree procedure.
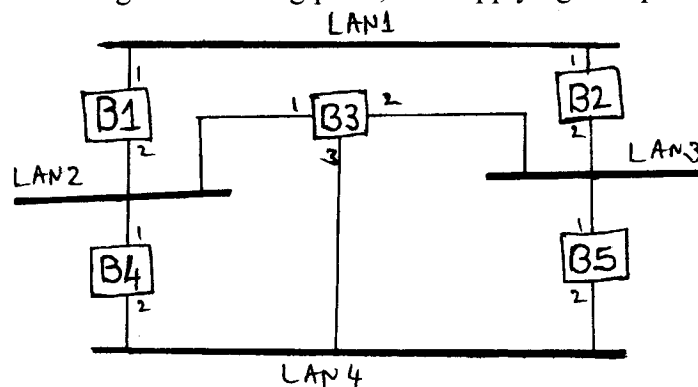

Fig.Q5(a) **(10 Marks)**

b. Define repeater, bridge and router with necessary diagrams. **(06 Marks)**

c. Differentiate between a bus backbone network and star backbone network. **(04 Marks)**

6 a. An ISP is granted a block of addresses starting with 150.80.0.0/16. The ISP wants to distribute these blocks of 2600 customers as follows:

   i) The first group has 200 medium size business; each needs 16 addresses.

   ii) The second group has 400 small business; each needs 8 addresses.

   iii) The third group has 2000 households; each needs 4 addresses.

   Design the subblocks and give the slash notation for each subblock. Find out how many addresses ate still available after these allocations. **(10 Marks)**

   b. Explain briefly strategies used to handle the transition from IPv4 to IPv6. **(06 Marks)**

   c. A block of addresses is granted to a small organization. One of the addresses is 205.16.37.39/28. What is the first address, last address and number of address in the block. **(04 Marks)**

7 a. Explain the 'Distance Vector Routing' for the following example shown in Fig.Q7(a).
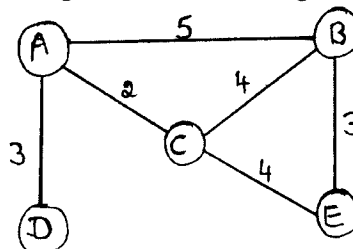

Fig.Q7(a) **(10 Marks)**

   b. Briefly discuss the following forwarding techniques:

   i) Next-Hop method versus Route method

   ii) Network-specific method versus Host specific method. **(06 Marks)**

   c. Distinguish between multicasting and multiple unicasting. **(04 Marks)**

8 a. Explain connection establishment and connection termination in TCP. **(10 Marks)**

   b. Write a note on DNS. **(06 Marks)**

   c. Write a short note on source port number and destination port number in user datagram. **(04 Marks)**

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